

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of the claims in the application.

Listing of the Claims:

1. (withdrawn) A cable comprising:
 - a) a first connector having a print controller ready data interface for receiving print controller ready data (PCRD);
 - b) a second connector having a print engine ready data interface for providing print engine ready data (PERD); and
 - c) a printer controller for receiving the print controller ready data and based thereon for generating print engine ready data.
2. (withdrawn) The cable of claim 1 further comprising:
 - a) a cable format conversion mechanism for converting signals in a first format into corresponding signals in a second format.
3. (withdrawn) The cable of claim 1 further comprising:
 - a multiple target device support mechanism for supporting at least two different types of target devices.
4. (withdrawn) The cable of claim 3 wherein the multiple target device support mechanism further comprises:
 - a) a laser printer interface for providing an interface to laser printers;

- b) non-impact printer interface for providing an interface to non-impact ink printers; and
 - c) a common formatting circuit coupled to the laser printer interface and the non-impact printer interface for providing functions to the laser printer interface and the non-impact printer interface.
- 5. (withdrawn) The cable of claim 1 wherein the print engine ready data interface includes:
 - a) a first signal for sending commands from the printer controller to the print engine;
 - b) a second signal for receiving status from the print engine in response to commands sent by the printer controller; and
 - c) a third signal for transferring data from the printer controller to the print engine.
- 6. (withdrawn) The cable of claim 5 wherein the print engine ready data interface further includes:
 - a) a first user interface signal for sending displayable data to the print engine; and
 - b) a second user interface signal for receiving user input from the print engine.
- 7. (withdrawn) The cable of claim 1 wherein the print controller ready data interface includes one of an industry standard computer port interface, a parallel port interface, a serial port interface, IEEE 1284 parallel port interface, a USB serial port interface, and an Ethernet interface.

8. (withdrawn) The cable of claim 1 wherein the print engine ready data (PERD) interface includes one of a parallel port interface, a serial port interface, an IEEE 1284 parallel port interface, a USB serial port interface, an Ethernet interface, and a custom interface.
9. (currently amended) ~~A printer controller disposed in a cable that includes a first connector for coupling to a printer with a print engine and a second connector for coupling to a source of data to be printed, said printer controller external to the printer, The cable of claim 30 wherein the printer controller comprising~~
comprises:
- a) a random access memory for storing a non-resident printer controller program;
 - b) a processor for executing computer programs coupled to the random access memory; and
 - c) a dynamic loading program for automatically managing the download of the non-resident printer controller program to the random access memory and for automatically determining whether the printer controller program is compatible with the print engine and the printer controller;
 - d) a print controller ready data interface for receiving print controller ready data (PCRD) from the source;
 - e) a print engine ready data interface for providing print engine ready data (PERD) to the printer; wherein the printer controller receives the print controller ready data and based thereon generates print engine ready data.

10. (currently amended) The ~~printer-controller~~ cable of claim 9
wherein the dynamic loading program, when executing on the processor,
selectively downloads from the source the non-resident printer controller
program to the printer controller when it is determined that the current
version of the printer controller program resident in the random access
memory is not valid.
11. (currently amended) The ~~printer-controller~~ cable of claim 9
wherein the dynamic loading program, when executing on the processor,
selectively downloads from the source the non-resident printer controller
program to the printer controller when it is determined that the current
version of the printer controller program resident in the random access
memory is one of non-existent and corrupt.
12. (currently amended) The ~~printer-controller~~ cable of claim 10
wherein the printer controller program, when executing on the processor,
receives print controller ready data and based thereon generates print
engine ready data for controlling a print engine.
13. (currently amended) The ~~printer-controller~~ cable of claim 9 further comprising:
an integrity check module, when executing on the processor, for performing an
integrity check on the printer controller program to determine whether
the printer controller program is valid, re-installing the printer controller

program from the source when the printer controller program is not valid, performing compatibility tests to determine whether the printer controller program is compatible with the printer controller and a printing software, re-installing the printer controller program from the source when the printer controller program not compatible with the printer controller and the printing software.

14. (currently amended) The ~~printer controller cable~~ of claim 9 wherein the printer controller is embodied in one of a single integrated circuit and an application specific integrated circuit (ASIC).
15. 20. (canceled)
21. (withdrawn) An office machine comprising:
 - a) a print engine for receiving print engine ready data (PERD) and responsive thereto for generating a hard copy of the print engine ready data, the print engine for coupling to a printer controller and for communicating data therewith, wherein the printer controller is disposed external to the office machine; and
 - b) a port having a print engine ready data interface for receiving the print engine ready data from the printer controller.
22. (withdrawn) The office machine of claim 21 wherein the print engine ready data interface includes:
 - a) a first signal for sending commands from the printer controller to the print engine;

- b) a second signal for receiving status from the print engine in response to commands sent by the printer controller; and
 - c) a third signal for transferring data from the printer controller to the print engine.
23. (withdrawn) The office machine of claim 22 wherein the print engine ready data interface further includes:
- a) a first user interface signal for sending displayable data to the print engine;
 - and
 - b) a second user interface signal for receiving user input from the print engine.
24. (new) A method of replacing a printer controller in a system that includes a host, a printer without a printer controller, and a first printer cable that connects the host to the printer; wherein the first printer cable includes a first printer controller that is external to the printer, the method comprising:
- dis-connecting the first cable from the host and the printer;
 - connecting the host to the printer with a second cable that includes a second printer controller; and
 - automatically determining whether the second printer controller is compatible with a print engine disposed in the printer and printing software disposed in the host.
25. (new) The method of claim 24
- wherein a user performs the step of disconnecting the first cable from the host and the printer; and

wherein the user performs the step of connecting the host to the printer with a second cable that includes the second printer controller.

26. (new) The method of claim 24 wherein the first printer controller is defective; and wherein the first defective printer controller is replaced by the second operative printer controller by replacing the first printer cable with the second printer cable.
27. (new) The method of claim 26 wherein a user replaces the first defective printer controller with the second operative printer controller by replacing the first printer cable with the second printer cable.
28. (new) The method of claim 24 wherein the first printer controller is out-dated; and wherein the first out-dated printer controller is upgraded by the second printer controller by replacing the first printer cable with the second printer cable.
29. (new) The method of claim 28 wherein the user upgrades the first out-dated printer controller with the second printer controller by replacing the first printer cable with the second printer cable.
30. (new) A cable comprising:
a first connector having a print controller ready data interface for receiving print controller ready data (PCRD);

a second connector having a print engine ready data interface for providing print engine ready data (PERD); and
a printer controller for receiving the print controller ready data and based thereon for generating print engine ready data.

31. (new) The cable of claim 30 further comprising:
a cable format conversion mechanism for converting signals in a first format into corresponding signals in a second format.
32. (new) The cable of claim 30 further comprising:
a multiple target device support mechanism for supporting at least two different types of target devices.
33. (new) The cable of claim 32 wherein the multiple target device support mechanism further comprises:
a laser printer interface for providing an interface to laser printers;
non-impact printer interface for providing an interface to non-impact ink printers; and
a common formatting circuit coupled to the laser printer interface and the non-impact printer interface for providing functions to the laser printer interface and the non-impact printer interface.
34. (new) The cable of claim 30 wherein the print engine ready data interface includes:

a first signal for sending commands from the printer controller to the print engine;
a second signal for receiving status from the print engine in response to commands sent by the printer controller; and
a third signal for transferring data from the printer controller to the print engine.

35. (new) The cable of claim 34 wherein the print engine ready data interface further includes:
a first user interface signal for sending displayable data to the print engine; and
a second user interface signal for receiving user input from the print engine.
36. (new) The cable of claim 30 wherein the print controller ready data interface includes one of an industry standard computer port interface, a parallel port interface, a serial port interface, IEEE 1284 parallel port interface, a USB serial port interface, and an Ethernet interface.
37. (new) The cable of claim 30 wherein the print engine ready data (PERD) interface includes one of a parallel port interface, a serial port interface, an IEEE 1284 parallel port interface, a USB serial port interface, an Ethernet interface, and a custom interface.